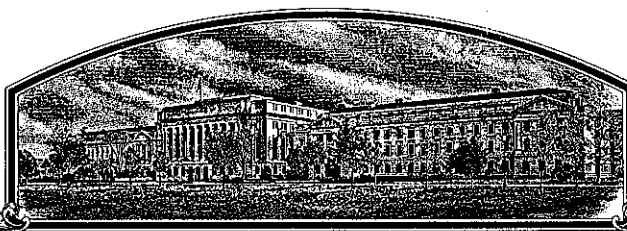


No.

8700021



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Sualof AB

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS SEED OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS PROVIDED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'Semira'

In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington, D.C.
this *29th* day of *May* in
the year of our Lord one thousand nine
hundred and ninety-two.

Attest:

Kenneth Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Edward Madison
Secretary of Agriculture

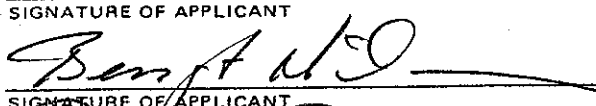

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0681-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. NAME OF APPLICANT(S) Svalöf AB		2. TEMPORARY DESIGNATION Sv 80512		3. VARIETY NAME Semira	
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) S-268 00 SVALÖV Sweden		5. PHONE (Include area code) 46 - 418 62510		FOR OFFICIAL USE ONLY PVPO NUMBER 8700021	
6. GENUS AND SPECIES NAME Hordeum vulgare		7. FAMILY NAME (Botanical)		FILING DATE November 20, 1986 TIME 10:00 <input checked="" type="checkbox"/> A.M. <input type="checkbox"/> P.M.	FEES RECEIVED AMOUNT FOR FILING \$ 1800.00 DATE November 20, 1986 AMOUNT FOR CERTIFICATE \$ 200.00 DATE Apr. 30, 1992
8. KIND NAME Spring Barley		9. DATE OF DETERMINATION 1980			
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Limited company				11. IF INCORPORATED, GIVE STATE OF INCORPORATION	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Bonis & Company Ltd. P.O. Box 217 LINDSAY, Ontario Canada K9V 4S1 PHONE (Include area code): (705) 324-0544					
14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.) b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement. c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of Variety (Request form from Plant Variety Protection Office.) d. <input type="checkbox"/> Exhibit D, Additional Description of Variety. e. <input checked="" type="checkbox"/> Exhibit E, Statement of the Basis of Applicant's Ownership.					
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.) <input checked="" type="checkbox"/> Yes (If "Yes," answer items 16 and 17 below) <input type="checkbox"/> No					
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input checked="" type="checkbox"/> Foundation <input checked="" type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified		
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S. <input type="checkbox"/> Yes (If "Yes," give date) <input checked="" type="checkbox"/> No					
19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input checked="" type="checkbox"/> No					
20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable. The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF APPLICANT  Svalöf AB				DATE July 9, 1986	
SIGNATURE OF APPLICANT  Bonis & Company Ltd.				DATE July 25, 1986	

ORIGIN AND BREEDING HISTORY OF
SPRING BARLEY SV 80512, SEMIRA

1974	Crossing Salka x Drossel
1974/75	F1
1975	F2 population
1976	F3 plant selection
1977	F4 family and plant selection
1978	F5 family selection
1979	F6 preliminary trials
1980	F7 replicated trials
1981	F8 replicated trials
1982	Replicated trials. Fix the genotype.
1983	Replicated trials. Official trials in Sweden.
1984	Replicated trials. Official trials in Sweden.
1985	Replicated trials. Official trials in Sweden.
1986	Replicated trials. Official trials in Sweden.

The variety is uniform and stable and this has been proven in DUS-trials in both Sweden and Denmark.

Svalöv, Sweden, July 9, 1986.



Bengt Nilsson
Director of Research

Novelty Declaration

We, the undersigned, applying for protection of a plant variety of the species spring barley denominated Semira (Sv 80512) hereby declare that the plant variety is a novelty and has not yet been commercialized in any country.

Semira has the following factors for mildew resistance:
La, a7, and g.

Among varieties known by us there is no other with the same combination of resistance factors.

Svalöv, Sweden, July 9, 1986

SVALÖF AB



Bengt Nilsson

Director of Research

Bonis & Company Ltd.

P.O. BOX 217, LINDSAY, ONTARIO, CANADA K9V 5Z4
TELEPHONE: (705) 324-0544 TELEX: 06962836 FAX: (705) 324-2550

EXHIBIT "B"

NOVELTY DECLARATION

We, the undersigned, applying for protection of a plant variety of the species spring barley, denominated "Semira" (SV 80512), hereby declare that the plant variety is a novelty and has not been commercialized in any country.

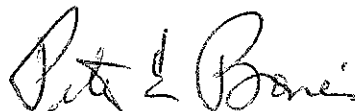
Semira has the following factors for mildew resistance which confer resistance to the indicated Scandinavian races of mildew:

<u>Mildew (M1)</u> <u>Resistance Factor</u>	<u>Mildew Race Resistant To</u>
M1-g	Race: 14-77
M1-a7	Races: 26-76, 89-1, 89-3
M1-La	Races: C 13, JEH 37, 26-78, 58-74, 81-10, 81-11, 84-38, 87-75

In comparative mildew tests with Lamont (US 1985), which has been found to be similar in physical traits, these two varieties show several different reactions.

<u>Factor</u>	<u>Race</u>	<u>Semira</u>	<u>Lamont</u>
M1-g	14-77	i	4
M1-a7	89-1	0 - 1n	4
M1-La	JEH 37	2n - 3	4
M1-La	81-10	2n - 3	4
M1-La	84-38	2n - 4	4
M1-La	87-75	2n - 3	4

November 21, 1991
Lindsay, Ontario, Canada
Bonis & Company Ltd.



Peter E. Bonis

Exhibit B**Novelty Declaration**

We, the undersigned, applying for protection of a plant variety of the species spring barley denominated Semira (Sv 80512) hereby declare that the plant variety is a novelty and has not yet been commercialized in any country.

Among varieties known to us, Semira is most similar in physical traits to Lamont (US 1985).

We have conducted tests to compare these two varieties and have come up with the following verifiable differences according to UPOV TG 19/7.

- 10. Semira has stronger glaucosity on heads compared to Lamont.
- 12. Semira is shorter in height (about 12 cm) than Lamont.
- 16. Semira: Length of awn compared to ear (head) is equal but often shorter.

As compared to;

Lamont: Length of awn compared to ear (head) is equal but often longer.

General mark: Semira has a darker green colour than Lamont.

Grain: The lemma of Semira is more smooth and the shape of grain is more rounded than Lamont.



Howard K. Love
Svalof Seed Ltd.

5

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Barley)

OBJECTIVE DESCRIPTION OF VARIETY
BARLEY (*HORDEUM VULGARE*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Svalöf AB

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

S-268 00 SVALÖV
Sweden

FOR OFFICIAL USE ONLY

PVPO NUMBER

8700021

VARIETY NAME OR TEMPORARY DESIGNATION

Semira (sv 80512)

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (i.e. or) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE
3 = ERECT

2. MATURITY (50% Flowering):

1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)

No. of days Earlier than } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
 No. of days Later than } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN

3. PLANT HEIGHT (From soil level to top of head):

1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest)

Cm. Shorter than } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
 Cm. Taller than } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN

4. STEM:

Exertion (Flag to spike at maturity): 1 = 0 - 3 cm. 2 = 3 - 10 cm. Anthocyanin: 1 = ABSENT 2 = PRESENT
3 = 10 - 15 cm.

NO. OF NODES (Originating from node above ground)

Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN Shape of Neck: 1 = STRAIGHT 2 = SNAKY
4 = MODIFIED CLOSED OR OPEN 3 = OTHER (Specify)

5. LEAF:

Basal leaf sheath (seedling): 1 = GLABROUS 2 = PUBESCENT Position of flag leaf (at boot stage): 1 = DROOPING
2 = UPRIGHT

Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY MM. WIDTH (First leaf below flag leaf)

CM. LENGTH (First leaf below flag leaf) Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT

6. HEAD:

Type: 1 = TWO-ROWED 2 = SIX-ROWED Density: 1 = LAX 2 = ERECT (Not dense)
3 = ERECT (Dense)

Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY
4 = OTHER (Specify) 3 = WAXY

Lateral Kernels Overlap: 1 = NONE 2 = AT TIP Rachis (Hair on edge): 1 = LACKING 2 = FEW 3 = COVERED
3 = 1/4 - 1/2 OF HEAD

7. GLUME:

Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA Hairs: 1 = NONE 2 = SHORT 3 = LONG
3 = MORE THAN 1/2 OF LEMMA

Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED

Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES
3 = MORE THAN EQUAL TO LENGTH OF GLUMES

Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

8. LEMMA:

- ☒ Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS
 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike)
 5 = LONG (longer than spike) 6 = HOODED
- ☐ Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH
- ☐ Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS ☐ Hair: 1 = ABSENT 2 = PRESENT
- ☐ Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE 3 = TRANSVERSE CREASE ☐ Rachilla Hairs: 1 = SHORT 2 = LONG

9. STIGMA:

- ☐ Hairs: 1 = FEW 2 = MANY

10. SEED:

- ☐ Type: 1 = NAKED 2 = COVERED ☐ Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT
- ☐ Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.)
 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)
- ☐ Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED
- ☐ Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE
- ☐ PERCENT ABORTIVE ☐ 45 GMS. PER 1000 SEEDS

11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☐ SEPTORIA ☐ NET BLOTCH ☐ SPOT BLOTCH ☐ POWDERY MILDEW
- ☐ LOOSE SMUT ☐ BACTERIAL BLIGHT ☐ COVERED SMUT ☐ FALSE LOOSE SMUT
- ☐ STEM RUST ☐ LEAF RUST ☐ SCAB ☐ SCALD
- ☐ AY ☐ BSMV ☐ BYDV ☐ OTHER (Specify)

12. INSECT: (0 = Not tested, 1 = Susceptible, 2 = Resistant)

- ☐ GREEN BUG ☐ ENGLISH GRAIN APHID ☐ CHINCH BUG ☐ ARMYWORM
- ☐ GRASS HOPPERS ☐ CEREAL LEAF BEETLE ☐ OTHER (Specify)
- HESSIAN FLY RACES ☐ GP ☐ A ☐ B ☐ C
☐ D ☐ E ☐ F ☐ G

13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☐ DDT ☐ OTHER (Specify)

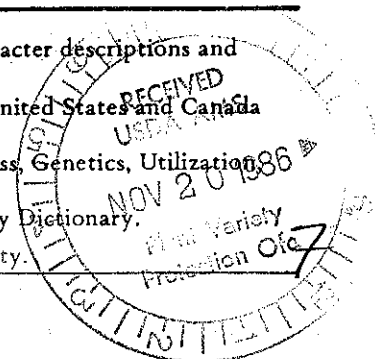
14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering		Seed size	
Leaf size		Coleoptile elongation	
Leaf color		Seedling pigmentation	
Leaf carriage			

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

- Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
- Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
- Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

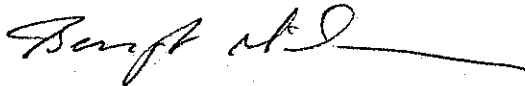


Statement of applicant's ownership

I the undersigned, Bengt Nilsson, Director of Research at Svalöf AB, am the breeder of spring barley variety Semira (Sv 80512).

I hereby declare that I have assigned to Svalöf AB all rights to registration of Semira including the right to apply for plant variety protection in Sweden and abroad.

Svalöv, Sweden, july 9, 1986



Bengt Nilsson